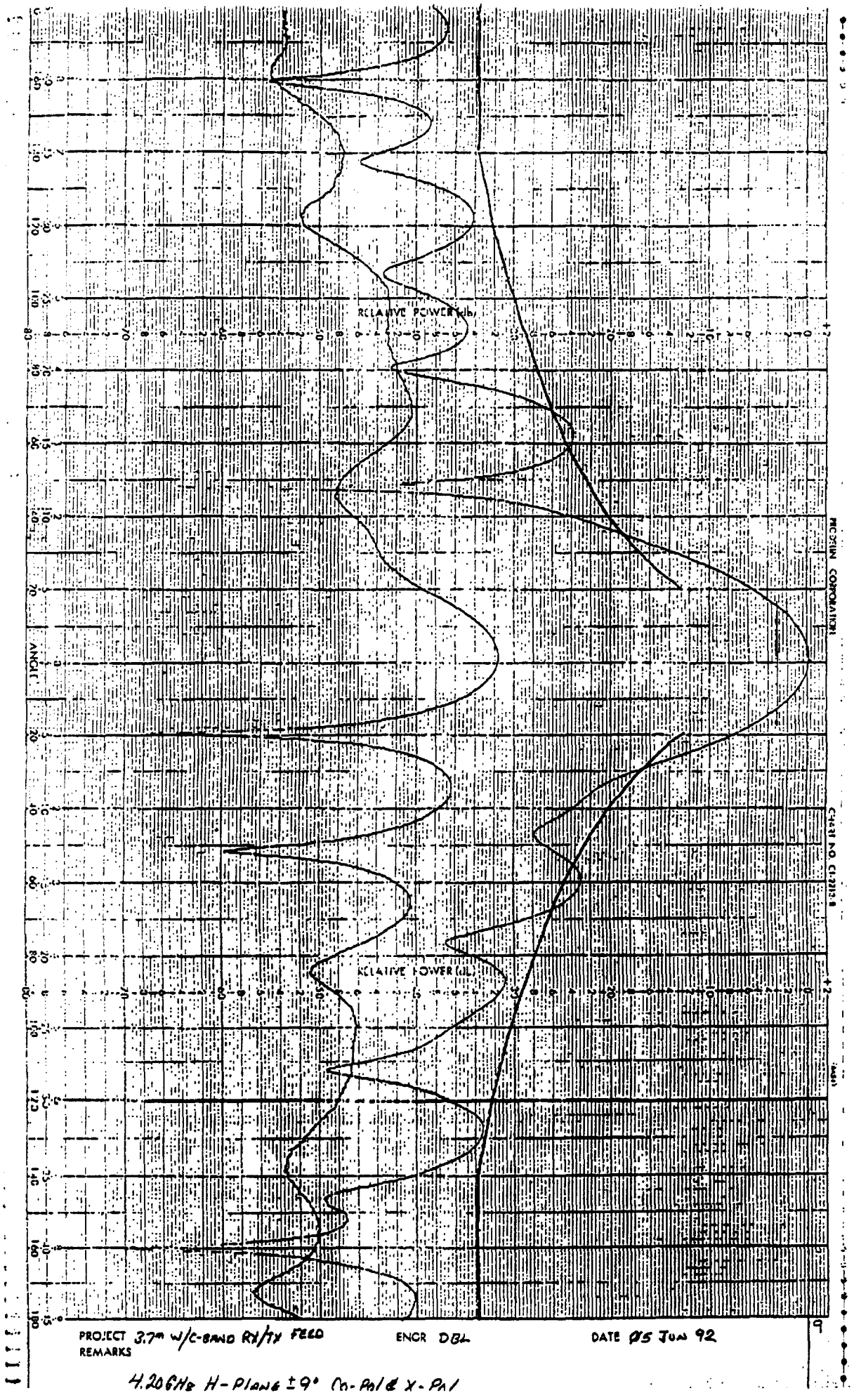
RELATIVE POWER (dB)
RELATIVE POWER (dB)
ANGLE
PROJECT 3.7m W/C-BAND RX/TX FEED
ENGR DBL
DATE 08 JUN 92
REMARKS
3.70 GHz E-PLANE ±9° CO-POL & X-POL


RELATIVE POWER (db)
RELATIVE POWER (dB)
ANGULAR
PRECISION CORPORATION
CHART NO. CI-2213-B
PROJECT 3.7m w/C-BAND RX/TX FEED
REMARKS
ENGR DBL
DATE 05 JUN 92
4.20GHz H-Plane ±9° Co-Pol & X-Pol

RELATIVE POWER (db)
ANGLE°
RELATIVE POWER (db)
PROJECT 3.7m W/C-BAND RX/TX FEED
ENGR DBL
DATE 05 JUN 92
REMARKS
4.20 GHz H.-PLANE ±9° & ±180° CO-POL

RELATIVE POWER (db)
ANGLE
RELATIVE POWER (db)
PROJECT 3.7m w/C-BAND RX/TX FEED
ENGR DBL
DATE 05 JUN 92
REMARKS
4.20GHz E-PLANE 9° Co-Pol & X-Pol.

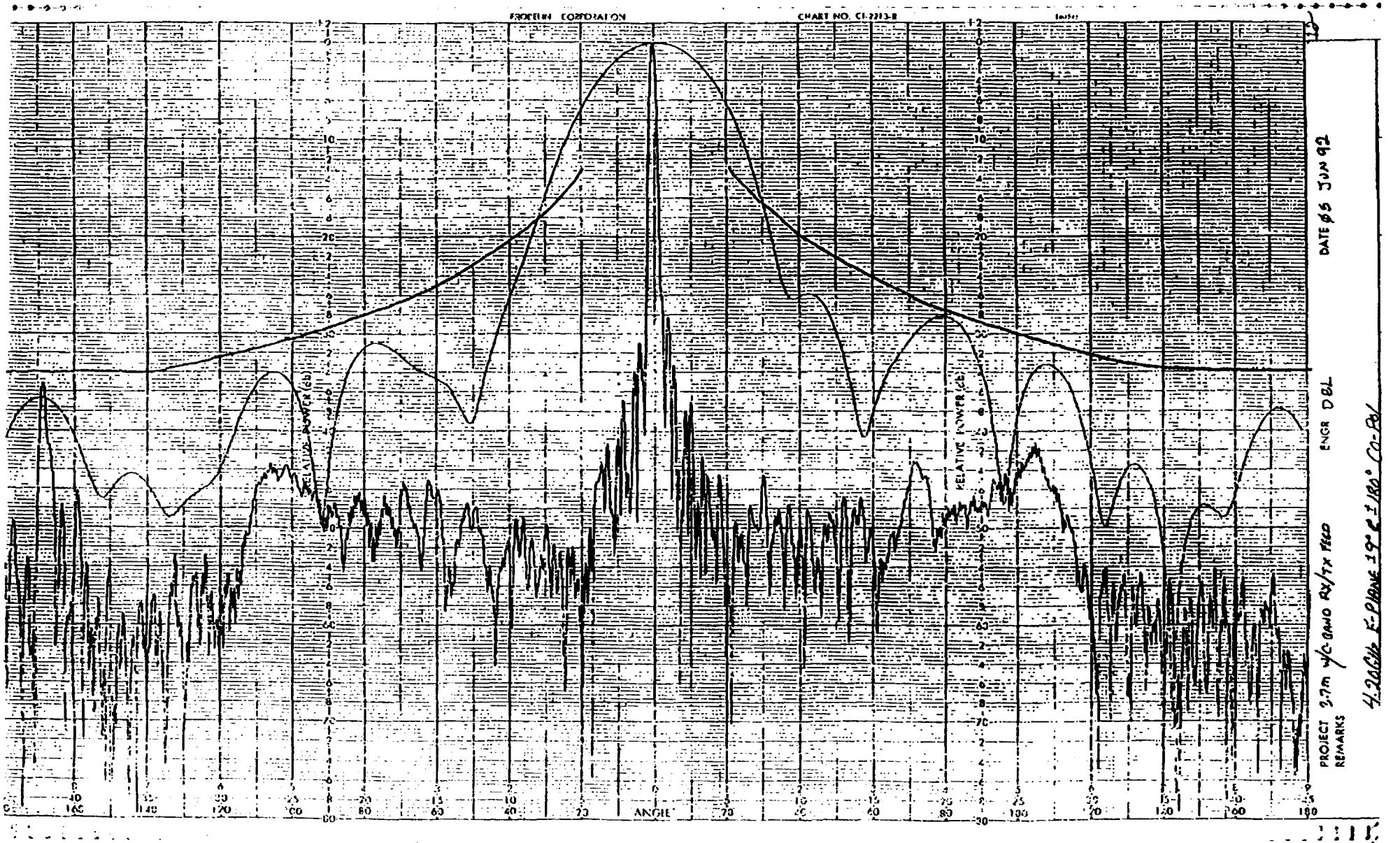

FREDERN CORPORATION
CHART NO. CI-2213-R
RELATIVE POWER (dB)
ANGLE
DATE 05 JUN 92
ENGR DBL
PROJECT 2.7m W/C BAND RX/TX FEED
REMARKS
4.2 GHz E-PLANE 19° & 180° CO-POL

Exhibit C

EXHIBIT C

POWER FLUX DENSITY AND EIRP DENSITY – COMPARISON 0F ONSAT 3.7 METER AND 4.5 METER ANTENNAS

Item	4.5 meter	3.7 meter
Maximum Gain (60% efficiency) @ 6 GHz- dB	46.8	45.1
Allowed power density into 4.5 meter (25.212 d)- dBW/4kHz	-2.7	
Allowed EIRP density out of 4.5 meter (note 1)- dBW/4kHz	44.1	
Maximum EIRP (Onsat 3.7 meter)- dBW		44.0
Maximum EIRP density out of 3.7 meter (note 2) – dBW/4kHz		27.5
Maximum power density into 3.7 meter (note 1) – dBW/4kHz		-17.6
Gain of 4.5 meter @ +/- 1 degree from max. (note 3) – dB	29	
Gain of 3.7 meter @ +/- 1 degree from max. (from pattern) – dB		31
Allowed EIRP density 4.5 meter @ +/- 1 degree – dBW/4kHz	26.3	
EIRP density 3.7 meter @ +/- 1 degree – dBW/4kHz		13.4

Notes:
1. EIRP density = Power Density into antenna + Antenna Gain
2. EIRP density = EIRP + 10 log 4/180 = 44.0 – 16 5 = 27.5
3. From 25.209: 29 – 25 log 1 = 29 – 0 = 29 dB

The EIRP density per 4 kHz from the Onsat 3.7 meter antenna is 12.9 dB (19 times) less than that which is allowed from a compliant 4.5 meter antenna at 1 degree from maximum gain.

Exhibit D

EXHIBIT D

FCC 312
Main Form

Approved by OMB 3060-0678

Est. Avg Burden Hours Per Response: 11 Hrs.

FEDERAL COMMUNICATIONS COMMISSION

APPLICATION FOR SATELLITE SPACE AND EARTH STATION AUTHORIZATIONS

FCC Use Only
File Number:
Call Sign:
Fee Number:

APPLICANT INFORMATION

1. Legal Name of Applicant ONSAT NETWORK COMMUNICATIONS, INC.	2. Voice Telephone Number (435) 655-3679
3. Other Name Used for Doing Business (if any)	4. Fax Telephone Number (435) 655-7676
5. Mailing Street Address or P.O. Box P.O. Box 8000 136 Heber Ave., Suite 204 ATTENTION: David Molinero	6. City Park City 7. State / Country (if not U.S.A.) Utah 8. Zip Code 84098
9. Name of Contact Representative (If other than applicant) Ellen P. Goodman	10. Voice Telephone Number (202) 662-6000
11. Firm or Company Name Covington & Burling	12. Fax Telephone Number (202) 662-6291
13. Mailing Street Address or P.O. Box 1201 Pennsylvania Ave., N.W. Washington, D.C. 20044 ATTENTION:	14. City Washington 15. State / Country (if not U.S.A) D.C. 16. Zip Code 20044

CLASSIFICATION OF FILING

17. Place an "X" in the box next to the classification that applies to this filing for both questions a. and b. Mark only one box for 17a and only one box for 17b.

- [X] a1. Earth Station
- [ ] a2. Space Station

- [ ] b1. Application for License of New Station
- [ ] b2. Application for Registration of New Domestic Receive-Only Station
- [ ] b3. Amendment to a Pending Application
- [ ] b4. Modification of License or Registration
- [ ] b5. Assignment of License or Registration
- [ ] b6. Transfer of Control of License or Registration
- [ ] b7. Notification of Minor Modification
- [ ] b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- [ ] b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- [X] b10. Other (Please Specify): Blanket C-Band Application

18. If this filing is in reference to an existing station, enter: Call sign of station: E870502	19. If this filing is an amendment to a pending application enter: (a) Date pending application was filed: (b) File number of pending application:

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Place an "X" in the box(es) next to all that apply.

[X] a. Fixed Satellite [ ] c. Radiodetermination Satellite [ ] e. Direct to Home Fixed Satellite

[ ] b. Mobile Satellite [ ] d. Earth Exploration Satellite [ ] f. Digital Audio Radio Service [ ] g. Other (please specify) _____

21. STATUS: Place an "X" in the box next to the applicable status. Mark only one box.

[ ] a. Common Carrier [X] b. Non-Common Carrier

22. If earth station applicant, place an "X" in the box(es) next to all that apply.

[X] a. Using U.S. licensed satellites [ ] b. Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Mark only one box. Are these facilities:

[ ] a. Connected to the Public Switched Network [ ] b. Not connected to the Public Switched Network

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).

[X] a. C-Band (4/6 GHz)

[ ] b. Ku-Band (12/14 GHz) [ ] c. Other (Please specify) _____

TYPE OF STATION

25. CLASS OF STATION: Place an "X" in the box next to the class of station that applies. Mark only one box.

[ ] a. Fixed Earth Station [ ] b. Temporary-Fixed Earth Station [ ] c. 12/14 GHz VSAT Network [ ] d. Mobile Earth Station [ ] e. Space Station [X] f. Other (Specify) 4/6 GHz VSAT

If space station applicant, go to Question 27.

26. TYPE OF EARTH STATION FACILITY Mark only one box.

[X] a. Transmit/Receive [ ] b. Transmit-Only [ ] c. Receive-Only

PURPOSE OF MODIFICATION OR AMENDMENT

27. The purpose of this proposed modification or amendment is to: Place an "X" in the box(es) next to all that apply.

[ ] a -- authorization to add new emission designator and related service
[ ] b -- authorization to change emission designator and related service
[ ] c -- authorization to increase EIRP and EIRP density
[ ] d -- authorization to replace antenna
[ ] e -- authorization to add antenna
[ ] f -- authorization to relocate fixed station
[ ] g -- authorization to change assigned frequency(ies)
[ ] h -- authorization to add Points of Communication (satellites & countries)
[ ] i -- authorization to change Points of Communication (satellites & countries)
[ ] j -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
[ ] k -- Other (Please Specify)

_____

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? [ ] YES [X] NO
If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application.

A Radiation Hazard Study must accompany all applications as an exhibit for new transmitting facilities, major modifications, or major amendments. Refer to OET Bulletin 65.

ALIEN OWNERSHIP

29. Is the applicant a foreign government or the representative of any foreign government?	☐ YES	☒ NO
30. Is the applicant an alien or the representative of an alien?	☐ YES	☒ NO
31. Is the applicant a corporation organized under the laws of any foreign government?	☐ YES	☒ NO
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	☐ YES	☒ NO
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	☐ YES	☒ NO
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit, the identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.		

BASIC QUALIFICATIONS

35. Does the applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	☒ YES	☐ NO
36. Has the applicant or any party to this application had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
37. Has the applicant, or any party to this application, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceeding two items? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, addresses, and citizenship of those stockholders owning of record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.		
41. By checking Yes, the undersigned certifies, that neither the applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	☒ YES	☐ NO
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. § 25.137, as appropriate. If no, proceed to question 43.	☐ YES	☒ NO
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? _____		

43. Description. (Summarize the nature of the application and the services to be provided).

The proposed network will provide high speed Internet access to rural schools, ISPs, and others. These areas do not currently have affordable Internet access. As a result, an under-served segment of the public will benefit from a timely grant of the license. The nature of the application is further described in Onsat's Petition for Declaratory Order and Petition for Waiver.

Exhibit No.	Identify all exhibits that are attached to this application.
1.	Radiation Hazard Study
2.	Loral Certificate

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Place an "X" in the box next to applicable response.)

☐ a. Individual ☐ b. Unincorporated Association ☐ c. Partnership ☒ d. Corporation ☐ e. Governmental Entity ☐ f. Other (Please specify) _____

45. Typed Name of Person Signing	46. Title of Person Signing
David Stephens	President and CEO

47. Signature	48. Date

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

FCC 312
Schedule B

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
(Technical and Operational Description)

Page 1: Location

(Place an "X" in one of the blocks below)

☐ License of New Station ☐ Registration of New Domestic Receive-Only Station ☐ Amendment to a Pending Application ☐ Modification of License/Registration ☐ Notification of Minor Modification

B1. Location of Earth Station Site. If temporary-fixed, mobile, or VSAT remote facility, specify area of operation and point of contact. If VSAT hub station, give its location. For VSAT networks attach individual Schedule B, Page 1 sheets for each hub station and each remote station. Individually provide the Location, Points of Communications, and Destination Points for each hub and remote station.

B1a. Station Call Sign	B1b. Site Identifier (HUB, REMOTE1, etc.)	B1c. Telephone Number	B1j. Geographic Coordinates Deg. - Min. - Sec. - N/S, E/W	B1k. Lat./Lon. Coordinates are:
E87052	HUB (shared)	(801) 575-5965	Lat. 40 - 46 - 12 - N	☒ NAD-27
			Lon. 111 - 54 - 03 - W	☐ NAD-83

B1d. Street Address of Station or Area of Operation	B1e. Name of Contact Person
5 Triad Center 55N 300 West	Duane Astin

B1f. City	B1g. County	B1h. State	B1i. Zip Code	B1l. Site Elevation (AMSL)
Salt Lake City		UT	84110	1,311 meters

B2. Points of Communications: List the names and orbit locations of all satellites with which this earth station will communicate. The entry "ALSAT" is sufficient to identify the names and locations of all satellite facilities licensed by the U.S. All non-U.S. licensed satellites must be listed individually.

Satellite Name and Orbit Location	Satellite Name and Orbit Location	Satellite Name and Orbit Location
Telestar 5 @ 97° W.L.		

B3. Destination points for communications using non-U.S. licensed satellites. For each non-U.S. licensed satellite facility identified in section B2 above, specify the destination point(s) (countries) where the services will be provided by this earth station via each non-U.S. licensed satellite system. Use additional sheets as needed.

Satellite Name	List of Destination Points
NA	

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

B4. Earth Station Antenna Facilities: Use additional pages as needed.

(a) Site ID*	(b) Antenna ID**	(c) Quantity	(d) Manufacturer	(e) Model	(f) Antenna Size (meters)	(g) Antenna Gain Transmit and/or Receive (____ dBi at ____ GHz)
HUB	HUB A	1	Vertex Dual Offset	VISAT	3.8	43.3 dBi @ 4GHz 46.5 dBi @ 6GHz
Remote 1	Remote A1	various	Prodelin	1374-370	3.7	41.8 dBi @ 4GHz 45 dBi @ 6GHz
Temp Fixed	Remote A2	various	Prodelin	1374-370	3.7	41.8 dBi @ 4GHz 45 dBi @ 6GHz

B5. Antenna Heights and Maximum Power Limits: (The corresponding Antenna ID in tables B4 and B5 applies to the same antenna)

(a) Antenna ID**	(b) Antenna Structure Registration No.	Maximum Antenna Height (c) Above Ground Level (meters)	Maximum Antenna Height (d) Above Mean Sea Level (meters)	(e) Building Height Above Ground Level (meters)***	(f) Maximum Antenna Height Above Rooftop (meters)***	(g) Total Input Power at antenna flange (Watts)	(h) Total EIRP for all carriers (dBW)
HUB A	NA	15	1,332	11	4	7.8	55.2
Remote A1	NA	NA	NA	NA	NA	0.6	44
Remote A2	NA	NA	NA	NA	NA	0.6	44

Notes: * If this is an application for a VSAT network, identify the site (Item B1b, Schedule B, Page 1) where each antenna is located. Also include this Site-ID on Schedule B, Page 5.

** Identify each antenna in VSAT network or multi-antenna station with a unique identifier, such as HUB, REMOTE1, A1, A2, 10M, 12M, 7M, etc. Use this same antenna ID throughout tables B4, B5, B6, and B7 when referring to the same antenna.

*** Attach sketch of site or exemption, See 47 CFR Part 17.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

B6. Frequency Coordination Limits: Use additional pages as needed.

(a) Antenna ID*	(b) Frequency Limits (MHz)	(c) Range of Satellite Arc Eastern Limit**	(d) Range of Satellite Arc Western Limit**	(e) Antenna Elevation Angle Eastern Limit	(f) Antenna Elevation Angle Western Limit	(g) Earth Station Azimuth Angle Eastern Limit	(h) Earth Station Azimuth Angle Western Limit	(i) Maximum EIRP Density toward the Horizon (dBW/4kHz)
HUB A	TX: 5,925-6,425	62°	143°	7.3°	30.2°	104.2°	228.2°	-15.5
HUB A	RX: 3,700-4,200	62°	143°	7.3°	30.2°	104.2°	228.2°	NA
Remote A1	TX: 5,925-6,425							-8.9
Remote A1	RX: 3,700-4,200							NA
Remote A2	TX: 5,925-6,425							-8.9
Remote A2	RX: 3,700-4,200							NA

Notes: * Provide the ANTENNA-ID from table B4 to identify the antenna to which each frequency band and orbital arc range is associated.

** If operating with geostationary satellites, give the orbital arc limits and the associated elevation and azimuth angles. If operating with non-geostationary satellites, give the notation "NON-GEO" for the satellite arc and give the minimum operational elevation angle and the maximum azimuth angle range.

Note: For each **Remote**, the minimum elevation angle will be 5 degrees.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

B7. Particulars of Operation (Full particulars are required for each r.f. carrier): Use additional pages as needed.

(a) Antenna ID*	(b) Frequency Bands (MHz)	(c) T/R Mode **	(d) Antenna Polarization (H,V,L,R)	(e) Emission Designator	(f) Maximum EIRP per Carrier (dBW)	(g) Maximum EIRP Density per Carrier (dBW/4kHz)	(h) Description of Modulation and Services
HUB A	5,925-6,425	T	H	6M0G7D	55	13.2	QPSK, 3/4 RATE FEC - DATA
HUB A	3,700-4,200	R	V	180K7D			QPSK, ½ RATE FEC - DATA
HUB A	5,925-6,425	T	H	180K7D	44	27.5	QPSK, ½ RATE FEC - DATA
Remote A1	5,925-6,425	T	H	180K7D	44	27.5	QPSK, ½ RATE FEC - DATA
Remote A1	3,700-4,200	R	V	6M0G7D			QPSK 3/4 RATE FEC - DATA
Remote A1	3,700-4,200	R	V	180KG7D			QPSK, ½ RATE FEC - DATA
Remote A2	5,925-6,425	T	H	180KG7D	44	27.5	QPSK, ½ RATE FEC - DATA
Remote A2	3,700-4,200	R	V	6M0G7D			QPSK, 3/4 RATE FEC - DATA
Remote A2	3,700-4,200	R	V	180KG7D			QPSK, ½ RATE FEC - DATA

Notes: * Provide the ANTENNA-ID from table B4 to identify the antenna to which each frequency band and emission is associated. For VSAT networks, include frequencies and emissions for all HUB and REMOTE units.

** Indicate whether the earth station transmits or receives in each frequency band.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

If VSAT Network, provide the SITE-ID (Item B1b) of the station that B8-B13 are in response to (HUB, REMOTE1, etc.): _____

B8. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with **geostationary** satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurements? If NO, provide as an exhibit, a technical analysis showing compliance with two-degree spacing policy.	☐ YES	☒ NO
B9. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with **non-geostationary** satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	☐ YES	☐ NO
B10. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	☐ YES	☐ NO

Remote Control Point Location:

B10a. Street Address: 5 TRIAD CENTER 55N 300 WEST			
B10b. City: SALT LAKE CITY	B10c. County:	B10d. State / Country: UTAH	B10e. Zip Code: 84110
B10f. Telephone Number: (801) 575-5965	B10g. Call Sign of Control Station (if appropriate): E850502		

B11. Is frequency coordination required? If YES, attach a frequency coordination report as an exhibit.	☒ YES	☐ NO
B12. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as an exhibit.	☐ YES	☒ NO
B13. FAA Notification - (See 47 CFR Part 17 and 47 CFR Part 25.113(c)) **Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and/or the FAA's study regarding the potential hazard of the structure to aviation?** **FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.**	☐ YES	☒ NO

EXHIBIT I – Page I of 4

RADIATION HAZARD STUDY

EXHIBIT I – Page 2 of 4

RADIATION HAZARD STUDY

REGION	RADIATION LEVEL mw/cm^2	HAZARD ASSESSMENT
Far Field, RF=164 m	0.037	Complies with guidelines
Near Field, RN=68.4	0.112	" " "
Transition Region, RT Rn<Rt<Rf	<0.112	" " "
Reflector Surface	0.047	" " "
Between Antenna and Ground	0.0005	" " "
Between Main Reflector and Feed	110	Potential Hazard

CONCLUSION:

Based on the above analysis it is concluded that harmful levels of radiation will not exist in regions normally occupied by the public or the earth station's operating personnel. The earth station will be marked with the standard radiation hazard warnings, on the antenna itself, warning personnel to avoid the area in front of the reflector when the transmitter is operational. To ensure compliance with the safety limits, the earth station transmitter will be turned off whenever maintenance and repair personnel are required to work in an area where the radiation level exceeds the level recommended by applicable guidelines. Additionally, the earth station is secured and access is controlled.

EXHIBIT I – Page 3 of 4

SUPPORTING CALCULATIONS
REF: FCC BULLETIN #65

A. Far Field:

$$R_f = \frac{0.6D^2}{\lambda} = \frac{0.6x(3.7)^2}{0.05} = 164 \text{ meters}$$

$$S = \frac{PG}{4\pi R^2} = \frac{5x2.51x10^4}{4\pi(164)^2} = .372W/m^2$$

$S = .037 mW/cm^2$

B. Near Field

$$R_n = \frac{D^2}{4\lambda} = \frac{(3.7)^2}{(4)x(0.05)} = 68.4 \text{ meters}$$

$$S = \frac{16\eta P}{\pi D^2} = \frac{(16)(.6)(5)}{\pi(3.7)^2} = 1.12W/m^2$$

$S = 0.112 mW/cm^2$

C. Transition Region:

Since the transition extends between R_n and R_f the power density can never exceed the power density in the near field.

$$S = \frac{S(nf)xR(nf)}{R}$$

D. Reflector Surface:

Assuming an even distribution of energy over the surface of the dish:

$$S = \frac{P}{\pi r^2} = \frac{5x10^3}{\pi(1.85x10^2)^2} = 0.047mW/cm^2$$

EXHIBIT I – Page 4 of 4

E. Between Antenna and Ground:

Nearest point is more than 1 diameter removed from the center of the main beam.

$$S=\frac{S(\text{reflector surface})}{100}=0.0005 mW/cm^2$$

F. Between Main Reflector and Feed:

The diameter of the feed aperture is 7.62 cm. The highest density will be at the aperture.

$$S=\frac{P}{\pi r^2}=\frac{5x10^3}{\pi(3.81)^2}=110\,mW/cm^2$$

Engineering Certification of Loral Skynet®[1]

September 1, 1999

Federal Communications Commission – International Bureau
445 12th Street, S.W.
Washington, DC 20554

To Whom It May Concern:

The undersigned of Loral Skynet certifies that, to the best of his knowledge, no U.S. domestic satellite is in orbit at less than two degrees from the Telstar 5 satellite, which is authorized to operate and is currently operating at 97 degrees WL in the geostationary earth orbit.

The undersigned further certifies that Loral Skynet is aware that Onset Network Communications, Inc. is planning to communicate with the Telstar 5 satellite by means of earth stations using a 3.7 meter diameter C-band antenna (Prodelin model # 1374-370), and that the antenna will be operating at a maximum EIRP density of 27.5 dBW/4 kHz, which is equal to a maximum power density at the antenna input port of –17.6 dBW/4 kHz.

Sincerely,

Robert C. Draper

Robert C. Draper – Principal Engineer
Satellite Services Engineering
Loral Skynet

[1] Skynet is a registered trademark of Loral SpaceCom Corporation.

COVINGTON & BURLING
1201 PENNSYLVANIA AVENUE, N. W.
P.O. BOX 7566
WASHINGTON, D.C. 20044-7566
(202) 662-6000

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KIMBERLY K. EGAN
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October 20, 1999

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: ***Ex Parte Notice***
In the Matter of Onsat Network
Communications, Inc.
Petition for Declaratory Order re Rule 25.115(c)
And Petition for Waiver of Rule 25.212(d)

Dear Ms. Roman Salas:

Onsat Communications Network, Inc. ("Onsat") hereby notifies the Commission that counsel and representatives met on October 19, 1999 with Ari Fitzgerald, Legal Adviser to Chairman Kennard, and Peter Tenhula, Legal Adviser to Commissioner Powell. Present at both meetings were David Stephens, President of Onsat; Lou Libin, VP for Business Development; and Ellen P. Goodman and Kimberly K. Egan, counsel to Onsat's technical consultant.

The meetings were held to discuss Onsat's Petition for Declaratory Order and Waiver, filed on September 10, 1999. Onsat reported that it had already met with the International Bureau regarding the technical aspects of the Petition, and discussed in general terms the nature of Onsat's service and the policy implications of granting the Petition. Onsat also discussed its plans to provide high speed, broadband access and distance learning to rural and under-served urban populations, such as those that are discussed in the attached articles.

Please direct any questions to the undersigned.

Sincerely,

Kimberly K. Egan
Counsel to Onsat's Technical Consultant

Attachments

USA TODAY Money

MONDAY, OCTOBER 11, 1999

BUSINESS TRAVEL

By David Field

Strike threat: Air France is rebooking passengers on flights scheduled for today between Paris and: Atlanta, Boston Logan, Chicago O'Hare, Houston Bush, Los Angeles, Miami, Newark, N.J., and Washington Dulles because of a strike threat in France. Call 800-237-2747 or check www.airfrance.com.

Call back: Auto Europe's "Click to Call" Web-site feature lets users get a return call from a reservationist 24 hours a day. Click www.autoeurope.com.

Airlines with the fewest reports of mishandled baggage in August
Reports per 1,000 passengers

Northwest	4.11
Southwest	4.12
Alaska	4.18
Continental	4.25
Delta	4.67

Source: Department of Transportation
By Genevieve Lynn, USA TODAY

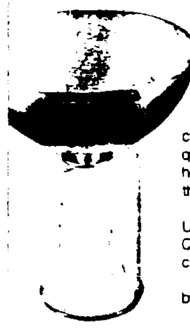
Fourth: China Southern adds Monday flights Dec. 6 between Los Angeles International and Guangzhou, China, for four weekly Boeing 777 nonstop flights on the route.

Allies: SAS and Icelandair will share more flights between Scandinavia and the USA and other European cities, starting Nov. 1.

Earning power: Delta Sky-Miles members can earn base miles and segments that count toward Medallion status by making qualifying flights on Delta's ally, Air France.

MONEYLINE

A QUICK READ ON THE TOP MONEY NEWS OF THE DAY



Is your team going for the Quality Cup?

USA TODAY and the Rochester Institute of Technology are accepting nominations for a national quality award, the Quality Cup, to honor teams that are helping improve the quality of goods and services.

For more information, call 800-USAT-RIT (800-872-8748), or visit the Quality Cup site at www.qualitycup.org.

Nominations must be postmarked by Dec. 6.

MARKETS FRIDAY

Index	Close		Change
Dow Jones industrial average	10,649.76	▲	112.71
Dow for the week		▲	376.76
USA TODAY Internet 100	106.61	▲	2.78
e-Business 50	110.16	▲	1.50
e-Consumer 50	102.34	▲	4.10
Nasdaq composite	2886.57	▲	25.87
S&P 500	1336.02	▲	18.38
T-bond, 30-year yield	6.19%	▲	0.01
T-bill, 3-mo., discount rate	4.67%	▼	0.03
Gold, oz. Comex	$320.20	▼	2.60

Sources: USA TODAY research, Bloomberg News, Media General Financial Services

Asia markets (as of 1 a.m. ET today)

Market	Change Value and Points	Percentage
Tokyo	Closed for holiday	
Hong Kong	12,975.16, −137.26	−1.1%
Singapore	2136.83, +22.34	+1.1%
Jakarta	585.28, −2.96	−0.5%
Seoul	839.77, +.36	+.04%

Currencies abroad	Friday (N.Y.)	Today (Tokyo)
Yen per dollar	107.56	107.05
Euro (in dollars)	1.0622	1.0621

Source: Bloomberg News

GLOBAL DEAL: Fiber optic cable company Global Crossing is ready to buy Britain's Racal Telecom for $1.6 billion, the *Financial Times* reported today. It would put Global's European network at about 10,560 miles.

AUTOS: **Canadian Auto Workers** union members said Sunday that they voted to accept a contract with DaimlerChrysler. . . . **The United Auto Workers** and Ford Motor reached a tentative contract Saturday. *(Story, 6B.)*

STATE FARM RULING: A damage award to State Farm auto insurance customers swelled to $1.2 billion Friday after a judge ruled that the USA's largest auto insurer committed fraud by forcing auto body shops to use less-expensive replacement parts to repair cars. The $730 million award of actual and punitive damages came on top of an earlier $456 million jury verdict in the same lawsuit.

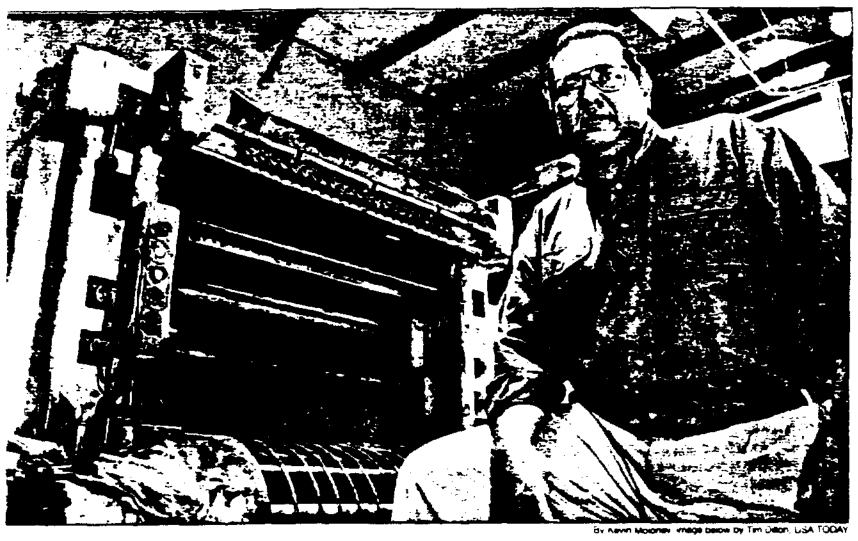
CABLE: The Federal Communications Commission eased rules Friday on the number of cable customers a single company can serve, hoping to hasten the roll-out of high-speed Internet connections and new telephone services. The rules had prohibited companies from access to more than 30% of the 95 million U.S. homes capable of being hooked to cable. The decision cuts some obstacles AT&T faces in its proposed $58 billion purchase of MediaOne.

BRIEFLY: Federal government offices, many state and local government offices, school districts, banks and bond markets will be closed today to mark **Columbus Day**. Stock exchanges will be open. . . . **Continental Airlines and Delta Airlines** raised excursion fares requiring advance purchase by up to $20 per round trip. Increases don't apply to top-dollar business fares. **America West** also raised fares. . . . The USA's **unemployment rate** was unchanged at 4.2% in September, the lowest in nearly 30 years, the Labor Department said. Average hourly earnings grew by 0.5% to $13.37.

Written by Sara Nathan from staff and wire reports

SPECIAL REPORT

AMERICA'S DIGITAL DIVIDE



By Kevin Moloney, image below by Tim Dillon, USA TODAY

No choice: Joseph Serna owns a print shop in an area of Denver that doesn't have access to affordable high-speed Internet service. Neglected communities tend to be the ones struggling hardest, including those with high concentrations of minorities.

On the wrong side of the wires

As the Internet revolutionizes our economy, inner cities and rural America face an alarming new danger.

They could lose jobs and investment they desperately need because affordable high-speed Internet services are passing them by.

As small businesses realize they'll need that speed to survive, communities without it are being trapped across a digital divide.

By David Lieberman
USA TODAY

Four years ago, Joseph Serna greeted the Internet with optimism. He hoped it would be a powerful tool to attract more customers to his seven-employee print shop in a north Denver industrial area that caters to small business.

Now, the president of Serna Enterprises — like millions of small-business people and thousands of communities — fears the new medium will crush him.

Serna's customers increasingly want to send art, photos and layouts to him via e-mail. They expect the minority businessman, a Hopi Indian, to return samples and proofs the same way.

But his conventional phone modem takes an exhausting 20 minutes to send or receive a simple eight-page brochure.

A new high-speed Internet connection could cut that to seconds. Phone companies are now offering such links at affordable rates in other, often more upscale, Denver areas.

But they don't serve his neighborhood, and they have no immediate plans to go there. His choice: Pay more than $1,000 a month for his own, dedicated T-1 phone line — or watch larger rivals get his customers. Without a high-speed link, "you can't compete," Serna says.

High-speed connections, also known as broadband, are becoming a must-have for small business. Yet a USA TODAY analysis finds thousands of communities and businesses have no direct access to affordable high-speed service. And it will be several years before they get it, based on where state-of-the-

Please see SPECIAL REPORT next page ▶

INSIDE: Three of the dozens of cities with digital divides, 2B
What can be done to bridge the divide, 3B

Padding in child car seats studied

Experts: Proper installation also is critical issue

By Jayne O'Donnell
USA TODAY

Federal safety regulators are examining whether infant safety seats need better padding after researchers discovered they failed to protect several babies from suffering skull fractures in car crashes.

A study by the Children's National Medical Center and the National Highway Traffic Safety Administration found that infants were more likely than older children to suffer skull fractures in car crashes. The authors say parents' improper installation of infant seats also may be to blame.

The researchers found that 13 infants received skull fractures out of 236 children with serious crash-related head injuries between 1993 and 1996. At least eight of the children were in safety seats.

The findings are significant because skull fractures in babies are often associated with brain injuries and learning disabilities later in life. One case being studied involved a 4-month-old baby who suffered two fractures in the back of her head and a severe brain injury in a head-on collision. Safety rules require easily compressible, thin padding in all child seats. But some safety experts believe infants' soft skulls need more cushioning.

Kathleen Weber, child passenger protection program director at University of Michigan's medical school, calls the federal rules a "joke" because the padding is designed to comfort, not protect, children.

NHTSA chief Ricardo Martinez agrees that padding rules may need to be strengthened. Some child-seat makers, including Britax, Fisher-Price and Century, have added energy-absorbing foam under the required padding to better protect infants in crashes. But their seats, which cost between $99 and $150, are a small percentage of the 4.3 million seats that NPD Group estimates are sold each year.

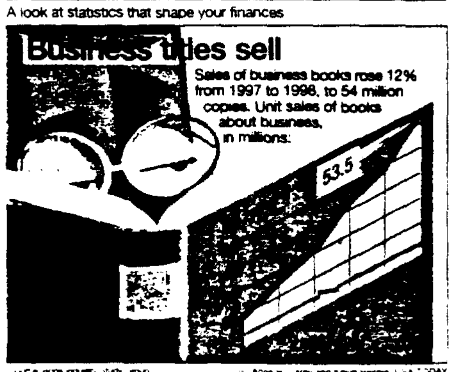
Barbara Matejka, who inspects child seats for DaimlerChrysler customers at Park Jeep Eagle in Burnsville, Minn., says infant seats are frequently tilted forward too far — forcing the baby's head down — when they are installed. In a crash, the baby's head would be flung back several inches against the infant seat, increasing the risk of a skull fracture.

NHTSA says infant seats have proved to be 71% effective in reducing fatalities in car crashes.

▶ How to install seats, 6B

USA SNAPSHOTS®

A look at statistics that shape your finances



Source: Book Industry Study Group
By Anne R. Carey and Kevin Rechin, USA TODAY

Investors forecast prediction sites will be hot

IExchange to market stock prognostications

By Janet Kornblum
USA TODAY

The Web is opening up a market that takes sites such as eBay to a new level: Instead of buying goods and services, how about buying and selling predictions?

IExchange, launching today and founded by Bill Gross of Idealabs, is hoping the concept is the spark needed to set off an explosion in which buying and selling predictions becomes a huge market.

Imagine that the guy living next door keeps winning at the races. You might be willing to cough up a few bucks to get in on his predictions. IExchange and other sites like it work pretty much the same way, except iExchange deals in stocks, the horses of the Net.

Here's how it works:

Let's say Mary wants to become what iExchange CEO David Eisner loosely refers to as an "analyst." She goes to the site, registers and fills out forms with her predictions of how stocks will do.

IExchange uses a formula to figure out how close she got. It does that for every prediction made, so that over time, Mary has a record that ranks her. Eventually, using her record, Mary can put a price to her predictions and reports.

Enter Joe Investor. He goes to iExchange to buy some predictions, based on the records of the "analysts." Analysts set their own prices, and transactions are handled by iExchange, which, like auction site eBay, takes a cut.

Eisner thinks the first "reports" will be free, then will be sold for $1 to $2, and eventually $5 to $10, each.

Venture capital company Kleiner Perkins Caufield & Byers invested $5 million in iExchange in June.

And iExchange is not alone.

▶ Predict It (www.predictit.com) lets people get paid for stock predictions as well as forecasts of sports scores.

▶ ExpertCentral.com, launching today, matches Net users with a cross-section of people who are rated by users according to past expertise they have shown. Expertise can be offered on just about any subject, from how to clean a fish tank to how to write a business plan.

Industry analysts (those paid to do their jobs) are watching the trend closely. "If you write good research, you should be rewarded for it," says Jim Laird of The Yankee Group.

By Sam Ward, USA TODAY

Inside on 4B

Companies brace stockholders for Y2K problems stemming from the domino effect